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LOS ANGELES REGIONAL WATER QUALITY CONTROL BOARD

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April 10, 2009

Chair Lutz and Board Members
Los Angeles Regional Water Quality Control Board
320 4th Street, Suite 200
Los Angeles, CA 90013

Dear Chair Lutz and Members of the Board:

I have previously submitted a study to the Los Angeles Regional Water Quality Control Board that reports on my findings regarding the feasibility and water quality benefits of Low Impact Development ("LID") implementation in Ventura County. LID is an extremely effective way of addressing a root cause of stormwater pollution: the unnaturally high degree of impervious surface in urban areas which not only conveys significant pollutant loadings to receiving waters, but also has related and deleterious water resources impacts. Because it addresses a root cause of stormwater pollution, LID is not merely one of many theoretically co-equal best management practices, but rather one that is central to stormwater pollution control today. For this reason, the technical adequacy of the Ventura County MS4 Permit's ("Ventura County Permit" or "Permit") new development and redevelopment provisions, and the degree to which they integrate clear LID requirements tied to numeric performance metrics, is essential to the function and success of the Permit.

Summary

By way of summary, my study, "Investigation of the Feasibility and Benefits of Low-Impact Site Design Practices ("LID") for Ventura County," provided to you when the Draft Permit was first issued in 2007, examined the practicability of retaining storm water onsite through LID BMPs based on a performance standard ("effective impervious area") that drafts of the Permit contained. My analysis took into account local soil and rainfall conditions and examined a range of development types. The analysis showed that by retaining water from the site to meet a 3% EIA standard, LID practices result in drastically less polluted runoff compared to conventional BMPs (reducing site runoff volume and pollutant loading to zero in many typical rainfall scenarios). Even treating stormwater with the best-performing conventional BMPs is much less effective than using LID practices to retain water with a strong numeric requirement like 3% EIA. Pollutant loads would also be significantly diminished through the use of these LID techniques, especially in comparison to conventional BMPs. Based on my analysis, LID implementation, anchored to an EIA or volume-based design storm, is both feasible and

far preferable to the use of conventional BMPs from a water quality and quantity perspective.

The Permit Omits Practicable Control Requirements and Would Impose Standards Weaker than Other Jurisdictions

Overall, the Permit's requirements are notable in that they do not adopt a 3% EIA standard, notwithstanding local technical verification of this approach, and also do not adopt another equivalent storm water retention requirement for all regulated development and redevelopment projects. This makes the permit's critical development and redevelopment provisions out-of-step with common approaches to LID implementation nationally and with recent studies in the field, in which I have participated. Many other stormwater management documents around the country have adopted onsite retention standards with larger design storm volumes than the Ventura County Permit. These precedents can be compared to conditions in Ventura County, which generally has rainfall patterns that make retention-based LID approaches even more practicable than many other regions. I have enclosed as Attachment A my analysis ("Assessment of Evaporation Potential with Low-Impact Development Practices") of how these other examples from around the country support similar or stronger requirement in Southern California.

The Exemption from EIA for All Redevelopment is Unjustified Technically

Of particular significance, in reviewing the new draft of the Ventura County Permit, I note that its provisions appear to allow the use of conventional BMPs on any redevelopment site. As I demonstrated in my studies, LID implementation focused on onsite retention is feasible in a wide range of development typologies, and the pollution-reducing and volume-reducing benefits of LID practices far exceed conventional BMPs. In cases where retention of the design storm is not possible, standard practice in the field today offers a development applicant the opportunity to achieve the same performance in part offsite, which permits flexibility but returns predictable, superior water quality performance in the watershed or subwatershed. The Permit, however, dispenses with prior requirements to meet an EIA standard in redevelopment contexts, unless doing so can be shown by rigorous analysis to be technically infeasible.

There is no technical justification in the Permit for this exemption for redevelopment from meeting the EIA requirements. This exemption is, at minimum, substantially overbroad as now formulated. My research has shown that there is, in fact, no need for such blanket exemptions at all. Thus, from a technical standpoint, in this way also the Permit would require a level of performance considerably inferior to that which my Ventura County analysis demonstrated is feasible.¹

¹ The authors of "Low Impact Development Metrics in Stormwater Permitting" ("the report") drew certain negative (and not always well-founded, as explained in Attachment

This conclusion based on specific Ventura County analysis is bolstered also by my work and that of my colleagues, including the Regional Board's Xavier Swamikannu, who participated in the preparation of an expert report for the National Academy of Sciences. We found that LID techniques must be a top priority for implementation at new development *and* redevelopment projects covered by stormwater permits, unless their use can be formally and convincingly demonstrated to be infeasible. In keeping with the NAS report and my research, the Ventura County Permit should recognize the critical importance of using LID not only in "green field" applications, but also during redevelopment, so as to address urbanized landscapes that are today the chief source of storm water pollution and associated hydromodification of local streams. Based both on local work, work elsewhere in the field, and my investigations as part of the NAS team, I believe the exemption for redevelopment from a technical standpoint simply cannot be squared with technical practicability or what the best science tells us is necessary to address both polluted runoff and broad-scale changes to hydrogeology as a result of the current level of urban development.

Hydromodification

The Permit now waives interim hydromodification requirements for all projects under 50 acres, thereby excluding a great majority of the development and redevelopment activity in Ventura County. As a technical matter, this risks degradation to Ventura County watersheds because hydromodification is not just caused by a few large projects, but typically (more typically) by many smaller ones. Moreover, most LID BMPs are not sufficient to attenuate the peak storms that cause a great deal of hydromodification. Thus, the Permit's reliance on LID provisions is not a technically adequate solution to the hydromodification problem and appears to be based on a misunderstanding of the role and function of LID BMPs sized and designed to reduce pollution generated through smaller storms, on the one hand, and the approaches necessary to address watershed scale hydromodification, on the other hand. I note also that since the LID approach in the Permit does not actually require LID BMPs for redevelopment projects, let alone those

B) conclusions about a maximum 3-5 percent effective impervious area ("EIA") site design criterion. However, notably the results of the report's analysis overall contribute to the growing consensus that implementing LID according to a numeric metric is technically feasible in both new development and redevelopment contexts. The results thus buttress my findings in analyses performed earlier for San Diego and Ventura Counties and for the San Francisco Bay Area and support the feasibility of meeting a 3-5% EIA standard in southern California. However, the report's suggestion that a "delta volume" standard be adopted would depart from standard and well-accepted practice in the United States, resulting in significantly greater volumes of stormwater with concomitant, significant increases in the mass volume of a range of pollutants in stormwater.

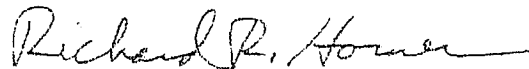
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sized to address the water quality design storm, the approach of relying on LID BMPs to address hydromodification is further unjustified (and, in this instance, illusory).

Conclusion

In summary, based on my Ventura County-specific study, my work in the field, and my knowledge of the state of practice in California and nationally, I conclude that the Permit's current scheme will not result in effective, feasible mitigation of the various problems caused by stormwater runoff, and it will certainly allow a significant amount of pollution, which could feasibly be reduced through LID techniques, to be discharged to receiving waters.

Sincerely,

A handwritten signature in black ink, reading "Richard R. Horner". The signature is fluid and cursive, with a long horizontal stroke at the end.

Dr. Richard Horner